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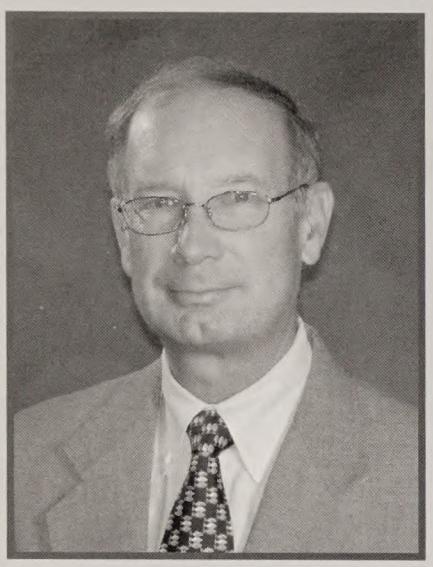
Year 2004 Annual Report

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Director's Message



We are pleased to provide you with the National Science and Technology Center's annual report for fiscal year 2004. This has been another challenging and exciting year for the Center. The use of the public lands and resources, particularly in the Western States, continues to increase as the population of those States multiplies. Consequently, the Bureau of Land Management (BLM) and the Department of the Interior (DOI) are faced with pressing challenges regarding the management of our natural resources. Integrating science and technology into the management of our Nation's natural resources is critical to their use, protection, and conservation.

The National Science and Technology Center strives to bring BLM offices the best available science, using the latest technology, to support resource management planning and decisionmaking. NSTC provides this support through partnerships, collaboration, and flexibility, in addition to a dedicated staff of highly qualified professionals in many different and unique disciplines. This year, the Center was realigned to better meet our customers' needs, to make the flow of scientific information to our customers more efficient, and to improve the collection, analysis, synthesis, and dissemination of scientific information to our customers in the field. The Center is proud to support the Department's emphasis on science and to highlight our accomplishments towards meeting the goals for resource protection, resource use, recreation, and serving communities outlined in the DOI Strategic Plan and the BLM Operating Plan.

The Center continues to be committed to providing the best services in a cost-effective manner that is responsive to our customers' needs. By doing this, we believe that we can continue to be a valuable resource to all of the BLM offices, both at field locations and in Washington, DC. We invite you to spend some time looking through this annual report. We welcome any comments you may have regarding this report that will make future reports more responsive to your needs.

Lee Barkow

Lee Barkow
Director

Resource Protection

Protect the Nation's natural, cultural, and heritage resources.

- Managed the planning and schematic design of the Red Rock Desert Learning Center and Wild Horse and Burro Facilities in the Red Rock Canyon National Conservation Area in Nevada.
- Provided digital mapping support for 17 Land and Water Conservation Fund projects to be incorporated within a Congressional submission for appropriations funding.
- Developed a science-based adaptive management model and a strategic framework for integrating science and technology into sagebrush ecosystem restoration and management.
- Provided technical support and assistance, including development of a connectivity model, for the Prairie-Grasslands Multispecies Conservation Strategy.
- Researched and compiled definitions of "old growth" for a range of tree species in response to the President's Healthy Forests Initiative.
- Provided soil science expertise for a review of the rangeland health assessment for Grand Staircase-Escalante National Monument in Utah.
- Provided planning, design, and contract administration services for the development of a new operations center and employee residence at Dos Palmas Preserve in California.
- Produced large-scale topographic maps and orthophotos to aid in the characterization and reclamation of abandoned mine lands at Harrison Creek in Alaska and Rip Van Winkle and Kinsley Mines in Nevada.

- Provided programming support and developed prototype databases to track riparian functional assessments and to store and manage land health assessment information for the Eagle Lake Field Office in California.
- Modified the Plant Information Network (PIN) database to improve access to plant species information relevant to planning and decisionmaking in portions of Colorado and Utah and provided training for users in BLM Field Offices.
- Completed the documentation and technical review of a process for conducting a multiscale sagebrush assessment for land use plans and rangeland health evaluations in the Jordan Resource Area in Oregon.
- Evaluated the Forest Service's Forest Inventory and Analysis (FIA) data for its utility in BLM's planning processes.
- Provided site characterization, engineering evaluation/cost analysis (EE/CA), risk assessment, cleanup design, and contracting support for evaluation and cleanup actions at 32 hazardous waste and abandoned mine sites on public lands, including: Josephine Mine in Oregon, San Pedro abandoned mine sites in Arizona, Davis tailings in California, Idaho Selenium Project, La Sal Creek in Utah, Ralston Gas Plant in Wyoming, Anvil Points National Oil Shale Reserve in Colorado, Tyro Mill in Nevada, and I&W Hot Oil site in New Mexico. These sites posed a significant threat to public safety and the environment.
- Provided civil, sanitary, electrical, and structural engineering design services for the Dolores Public Lands Office facilities in Colorado, where USDA Forest Service and BLM staff will be colocated.

- Investigated methods for creating a detailed topography map of a 45-mile stretch of the Red River along the border between Texas and Oklahoma for the New Mexico State Office.
- Researched the impact of fire on pricklypear cactus and compiled the information in a report for specialists and managers in the Phoenix Field Office in Arizona.
- Helped develop, edit, design, and publish four Technical Notes: "Aerial Surveys of Cliff-Nesting Raptors in the National Petroleum Reserve—Alaska, 1999, With Comparisons to 1977" (TN 413), "Hazardous Waste Site Sampling Basics" (TN 414), "Helium Resources of the United States—2003" (TN 415), and "Microclimate Effects from Closing Abandoned Mines with Culvert Bat Gates" (TN 416). Technical Notes are a forum for BLM employees to share information such as analytical methods and techniques; applied science; and assessment and monitoring results pertaining to a single resource management topic.
- Coordinated BLM's review of, and incorporated comments into, the revised National Vegetation Classification Standard.

- Helped design and instruct courses for the National Training Center on topics such as soil advanced technology, the Water Erosion Prediction Project (WEPP), the Rangeland Administration System (RAS), basic range administration, ground-water evaluation techniques, the basics of hazardous materials management, and characterization of abandoned mine lands. Also conducted required hazardous waste operations and emergency response (HAZWOPER) safety training, presented a session on Natural Resources Damage Assessment case strategy development at a national workshop, and taught a course on using aerial photos to assess the condition of riparian-wetland areas to the Iowa Nation in Oklahoma.
- Provided technical support to BLM offices in Arizona and to the Department of Justice for ongoing studies to protect hydrologic and riparian values associated with the San Pedro Riparian National Conservation Area.
- Assisted with potentially responsible party (PRP) searches, settlement agreements, cost recovery strategies, and coordination with the Department's Solicitor on Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) cost recovery and enforcement actions associated with 10 hazardous waste and abandoned mine sites, including: Gooseberry Mine in Nevada, Alaska Cost Recovery Project, Bretz Mine in Oregon, Big Bend in Arizona, Black Rock Mine in California, La Sal uranium mine in Utah, and Ralston Gas Plant in Wyoming.
- Provided design services for construction of a runoff retention pond and new water systems at the Palomino Valley Wild Horse Center in Nevada.
- Acquired new aerial photography for multiple uses by BLM offices in California, Idaho, and Arizona, and located, reproduced, and distributed copies of aerial photography of Bureau lands to BLM offices, other government agencies, and the general public.
- Published eight Resource Notes on topics such as remediation of abandoned mine lands using remote sensing technology, sustainable design, emergency rehabilitation and restoration,

vegetation mapping, and livestock grazing impacts. Resource Notes are brief articles designed to share resource management information; they are available at *www.blm.gov/nstc/resourcenotes/resnotes.html.*

- Assisted 10 Field Offices in Idaho, Montana, Wyoming, Utah, and Colorado with collecting, managing, and analyzing data on forest lands for resource management plan revisions and fuels assessment projects.
- Provided support to the National Riparian Service Team, including updating and maintaining assessment tools, providing training for applying these tools, reviewing assessments, maintaining the riparian area management Technical Reference series (1737), reviewing research proposals, designing and producing poster sessions, and editing and publishing the team's strategy document.
- Administered and oversaw the initial design and construction of the Desert Tortoise Conservation Center water rehabilitation project in Nevada. The project is being designed and built simultaneously, through a contract awarded to a small business, saving both time and money.

- Created two fire management publications, "Geospatial Technologies Strategic Plan for Fire and Aviation Management" and a Spanish version of "Wildland Fire Primer: A Guide for Educators," and a poster session, "Wildland Fire and Fuels Research: Helping Managers Make Better Decisions."
- Conducted a science-related literature search on drought to facilitate related impact assessments for the State of Utah.
- Assisted the Anchorage Field Office in completing aerial photo assessments of riparian-wetland resources in the Carter Spit watershed in Alaska.
- Assisted the Ely Field Office in Nevada with identifying and protecting BLM resources that could be affected by Las Vegas' municipal needs for ground-water sources in three counties.
- Provided development concept planning assistance for Piedras Blancas Lighthouse in California.
- Completed a standardized remote sensing vegetation analysis for Colorado, as well as associated data models and a Web site for data dissemination, in cooperation with the Colorado Division of Wildlife.
- Developed a display, which includes a vegetation map of the U.S. and Canada, photos of BLM forest lands and management activities, and text addressing forest health, for the joint 2004 Society of American Foresters and Canadian Institute of Forestry convention.
- Assisted with scoping site needs, assessing natural resource injuries from hazardous substance releases or oil spills, coordinating with other agencies, representing BLM on natural resource trustee councils, and planning and implementing restoration actions for eight Natural Resource Damage Assessment and Restoration (NRDAR) sites: New Carissa in Oregon, Clark Fork in Montana, Summitville Mine in Colorado, Coeur d'Alene Basin in Idaho, California Gulch/Upper Arkansas in Colorado, Yerington Mine in Nevada, Iron Mountain in California, and Gila River in Arizona.

Resource Use

Manage natural resources to promote responsible use and sustain a dynamic economy.

- Continued ongoing coordination with the National Renewable Energy Laboratory and Argonne National Laboratory on renewable energy issues and contracts.
- Supported the development of a draft environmental impact statement and analysis of public comments on a comprehensive revision of public lands grazing regulations.
- Refined user requirements and the design of a new Wild Horse & Burro Program System (WHBPS) to replace the Wild Horse & Burro Business Information System (WHBIS). Edited and helped publish "Adopting a Wild Horse or Burro from an Adoption Facility," a pamphlet that provides facility and basic adoption information.
- Developed a prototype for an automated tracking system that will be used to monitor progress on roughly 100 stewardship contracts in fiscal year 2005 in support of the President's Healthy Forests Initiative.
- Continued production on an automated 1:100,000-scale database for mapping and other geographic information systems (GIS) purposes. Automated data themes now covering 37 percent of the Western United States include

the Geographic Coordinate Data Base, surface/minerals ownership, wilderness, transportation, hydrography, hypsography, and text labels.

- Provided critical technical support for the development of a BLM and Forest Service "ePlanning" Web site and a user interface for public input. Provided ArcSDE software training and support for the Bureau Enterprise GIS project.

- Compiled information and developed engineering geology assessments for 11 power site withdrawals.
- Provided assistance to a national team to develop a water strategy that describes how the BLM can contribute to the Secretary of the Interior's Water 2025 Initiative.
- Revised and automated 75 1:100,000-scale surface/minerals management maps in support of multiple resource programs and recreational activities in 10 Western States.
- Produced "BLM Library Update," a monthly listing of recent books and articles pertaining to natural resources, and circulated over 2,500 titles from these listings.
- Provided Bureau employees with Internet access to over 50 full-text, natural resources journals and 17 databases.
- Released three system updates to expand the functionality of the Wild Horse and Burro Information System (HB), developed an operations manual to allow maintenance of the system during development of a new system, and provided training on the system for Field Office users.
- Developed substantive changes to the annual rangeland inventory, monitoring, and evaluation report, which complies with requirements in the Public Rangelands Improvement Act of 1978.
- Provided assistance with air and water quality modeling, collection and interpretation of analytical data, Clean Air and Water Acts compliance, litigation, and contract oversight for 11 energy development environmental impact analyses in areas such as Vernal, Utah; the Roan Plateau in Colorado; the Powder River in Montana; Tarrent County, Texas; and the Jonah Infill in Wyoming.
- Revised a digital version of the 1:500,000-scale New Mexico State map showing complete surface ownership, the public land survey system, political boundaries, major transportation routes, hydrography, text labels, and shaded relief. The map will be printed and available in early spring 2005.
- Located and distributed over 7,000 requested books, articles, conference proceedings, and other publications pertaining to natural resources, recreation, and various other topics.
- Compiled bibliographies on many subjects, including the taxonomy, ecology, and successional dynamics of sagebrush; the wildland urban interface; neotropical migratory birds; the results of research in Pacific Northwest forest ecosystems; and the use of technology to locate orphaned and abandoned oil and gas wells.
- Incorporated forestry and grazing use authorization requirements into the specifications for the Department Land and Resource Management System.
- Conducted seven well and spring site investigations in Arizona, Utah, and Idaho for development of ground-water resources for livestock management.
- Revised and printed a digital version of a 1:2,500,000-scale map showing public lands, administrative District and Field Office boundaries, and most National Landscape Conservation System areas, including national monuments, conservation areas, wilderness areas, and forest reserves.

- Designed, edited, and produced a brochure and exhibit, "American Energy for America's Future," describing the Department of the Interior's contributions to the development of domestic energy resources.
- Helped write, edit, design, and produce environmental education presentations pertaining to wildlife habitat conservation for "The Wildlife Investigator Series" (Volume 1).
- Provided hydrologic and air quality support, including reviewing reports and contractor performance, for the Powder River Basin coal mining study. This effort included establishing an interagency (State and Federal) hydrologic advisory team to monitor and advise the Wyoming State Office on study-related issues.

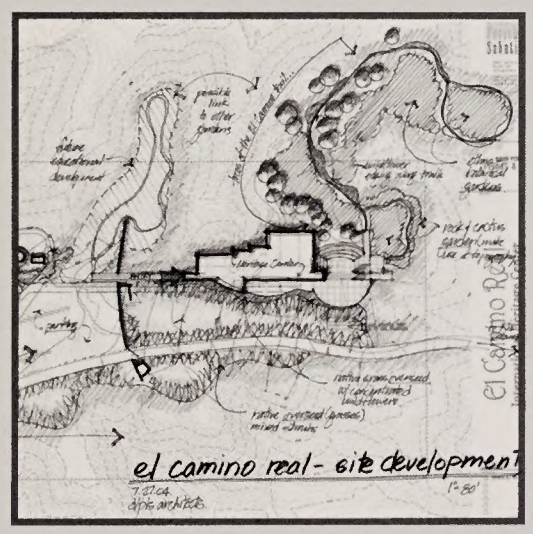
Recreation

Provide recreation opportunities for America.

- Provided conceptual and final designs for the renovation and expansion of the Cleveland-Lloyd Dinosaur Quarry Visitor Center in Utah and managed and oversaw the

design development of the California Trails Visitor Center in Nevada.

- Created large-scale topographic base maps for planning, development, and maintenance of interpretive and recreational facilities at Fort McKinney and Castle Gardens, Wyoming; Four Dances, Montana; and Yuma, Arizona.
- Created route inventories (including off-highway vehicle trails) for resource management planning in Nevada.
- Provided facility assessment, planning, design, and construction support services for several recreational areas, including the Red Spring day-use area and Cottonwood parking and trailhead area in Red Rock Canyon National Conservation Area in Nevada, Mackay Reservoir (second phase) and Dike Lake in Idaho, and Simpson Springs campground in Utah.
- Edited, designed, and produced 1 poster and 10 fliers, encouraging Americans to participate in outdoor activities on BLM-managed public lands, in support of the President's HealthierUS Initiative.
- Helped review and prioritize proposals and represented BLM's needs and interests on the National Recreation Technology and Development Steering Committee.

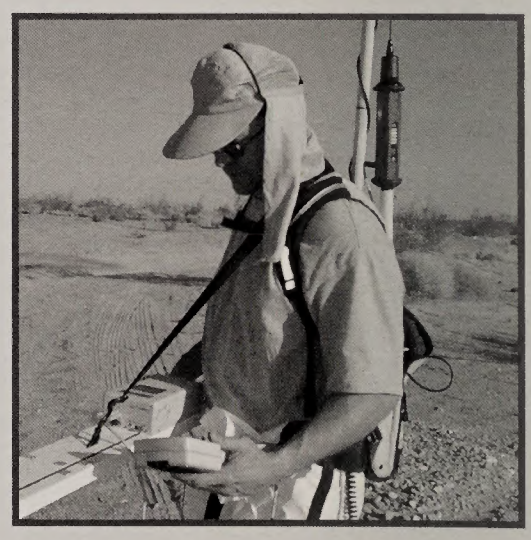


- Conducted four well site investigations in Utah and California for development of ground-water resources for recreational sites.
- Prepared a master plan for development of the Hickison Petroglyph Recreation Site in Nevada, provided landscape design services for the El Camino Real International Heritage Center in New Mexico, and conducted a facility and historical evaluation of Turn Point Lighthouse and caretaker quarters in Washington.
- Assisted the Eastern States Office in completing the analysis of public comments as part of the planning process for Meadowood Special Recreation Management Area (SRMA).
- Collaborated with the Eastern States Office and the National Training Center to develop and test a customized information delivery tool (GEOBOOK) for use in managing the Meadowood SRMA.
- Consulted on streamflow and geomorphic analyses related to the Lower Crooked and Rio Grande Wild and Scenic Rivers in Oregon and New Mexico, respectively.
- Provided various services, including planning, design, and technical support, for development of potable water and wastewater disposal systems at La Posa Long-Term Visitor Area in Arizona and for six new water systems in San Pedro Riparian and Las Cienegas National Conservation Areas in Arizona.
- Coordinated with the Forest Service to collect information on recreational off-highway vehicle impacts.

Serving Communities

Safeguard lives, property, and assets; advance scientific knowledge; and improve the quality of life for communities we serve.

- Provided various architectural and engineering services, including planning, design, and construction support, for a new administrative office at Campbell Tract in Alaska, a new 10,000-square-foot office in Miles City, Montana, the rehabilitation of the Caliente Field Office in Nevada, and a new Rawlins Field Office in Wyoming. The Rawlins project has been nominated for environmental/ green design awards and is anticipated to be the Bureau's first Leadership in Energy and Environmental Design (LEED) certified building.
- Established an interagency agreement with the Bureau of Reclamation to share close-range photogrammetry techniques that BLM uses to document dinosaur tracks and cultural sites and to provide technical assistance in applying those techniques for dam face monitoring.
- Tested the capabilities of GEOBOOK software for communicating resource conditions, cumulative impacts, and trends revealed through a regional assessment for the Colorado Plateau area of Colorado, Utah, and Arizona.



- Provided a technical review and guidance for a ground-water monitoring plan for the Pinedale Anticline gas field in southwest Wyoming. Development of the plan is a partnership effort with the Sublette County Conservation District and oil and gas operators.

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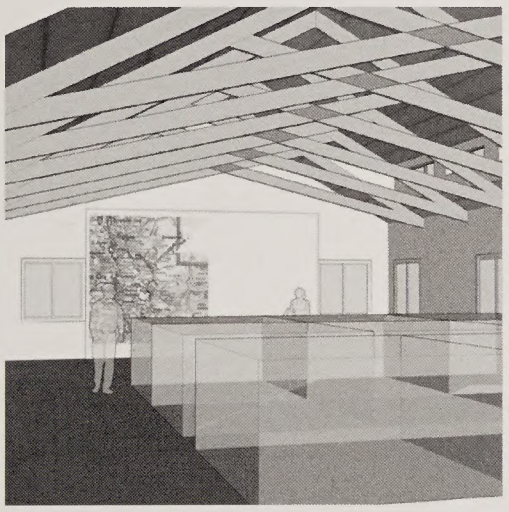
- Prepared designs for, and helped administer the construction of, several fire facilities in Nevada, including the crew quarters at the Palomino Valley and Midas Fire Stations and, using a small business design-build contract, the crew quarters, engine garages, and ancillary facilities at the Logandale, Red Rocks, and Pahrump Fire Stations.
- Performed cyclic bridge inspections and prepared condition reports for 9 bridges and 1 major culvert in California, 21 bridges in Idaho, 13 bridges and 5 major culverts in Montana, and 27 bridges in Wyoming, and performed a technical review of inspection reports done in Oregon.
- Refined the aerial photography archive intranet site by populating it with geographic and other archival data from most of the BLM states and developing a spatial data engine interface. The site is available for internal Bureau use during the pilot stage at *http://ncsd3arc2.corp.blm.gov/imf/imf.jsp?site=aerial_photography_archive_fcdemo*.
- Developed a prototype fire restrictions ArcIMS Web site for Colorado. The site can be accessed at *http://co_fireban.cr.usgs.gov*.
- Shared over 298 library resources with other Federal, State, and local libraries through the interlibrary loan process.



- Represented BLM by attending the annual meeting and reviewing research proposals for the National Partnership for the Management of Wild and Native Coldwater Fisheries, a group established to coordinate, prioritize, and support research and management activities that maintain and enhance the nation's coldwater fisheries.
- Provided contracting support for the mitigation of physical safety hazards, including closure of open mine shafts or adits that posed a significant threat to public safety, at five abandoned mine sites in Montana.
- Conducted a value engineering study and provided peer reviews for the rehabilitation of Little Anita Dam in Montana, Fort Benton Visitor Center in Montana, and a fire facility in Utah.
- Performed visual seismic technical evaluations of Piedras Blancas Lighthouse and numerous buildings at Centerville Naval Facility in California.
- Participated on an interagency advisory team to help write and design an orthoimagery guideline document in support of the Geospatial One-Stop Initiative.
- Reproduced microfiche of cadastral survey notes and plats for more than 65 BLM offices, other Federal and State entities, and the public.
- Supported the BLM Legacy and Best Practices programs to highlight and communicate success stories to BLM Field Offices.
- Chaired the Applied Technology Committee and Regional Conference Presentations Subcommittee of the National Cooperative Soil Survey, which is a nationwide partnership of Federal, regional, State, and local agencies and land grant universities developing standards for soil survey and data use.
- Led or provided support for several national engineering projects, including the Engineering Advisory Team Web page and other activities, the accessibility program, guide specifications, energy conservation and management, and Facility Asset Management System Development Team activities.
- Participated on interagency National Digital Elevation Program and National Digital Orthophoto Program committees, which evaluate new and existing technologies and develop guidelines.
- Provided program, administrative, and logistical support for the Applications of Science Initiative.
- Provided national-level BLM representation for the Sustainable Rangelands Roundtable through attendance and formal presentations at bimonthly meetings. The Roundtable is a group working to identify a suite of ecological, economical, and social indicators that can be assessed and reported periodically as the basis for evaluating rangeland sustainability at the national level.
- Assisted with facility closure and stabilization at the Ralston Gas Plant in Wyoming and the Excel Helium Plant in Texas to ensure public safety and compliance with environmental laws and regulations.

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November 2004

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